# Parameter Overview

## March 3, 2020

## Introduction

This file contains the parameters we tuned for each specific algorithm.
All parameters, which we changed from the default values, are listed.

The provided datasets (rosbags) can be downloaded here:

Scenario_1

Scenario_2

The necessary transformations from camera image / camera imu to robot base
are provided via broad.py. Due to the fact that some algorithms require these
transformations within a distinct time, we did not use the tf topic to provide this
data.

For more information: README

| Method | Parameters | Values |
|---|---|---|
| *RGBDOdometry* | MaxDepth | 15 |
| | MinDepth | 0.3 |
| | MaxDepthDiff | 0.05 |
| | MaxPointsPart | 0.05 |
| *DVO* | coarsest_level | 5 |
| | finest_level | 1 |
| | max_iterations | 300 |
| | influence_function | 2 |
| | influence_function_param | 30 |
| | use_weighting | true |
| | scale_estimator_param | 1 |
| | precision | 0.00005 |
| *Fovis* | fast_threshold | 15 |
| | max_pyramid_level | 4 |
| | fast_threshold_adaptive_gain | 0.005 |
| | feature_window_size | 10 |
| *ICPOdometry* | MaxDepth | 15 |
| | MinDepth | 0.3 |
| | MaxDepthDiff | 0.25 |
| | MaxPointsPart | 0.03 |
| *RgbdICPOdometry* | MaxDepth | 5 |
| | MinDepth | 0.3 |
| | MaxDepthDiff | 0.25 |
| | MaxPointsPart | 0.23 |
| *CCNY* | reg/ICPProbModel/min_correspondences | 12 |
| | reg/ICPProbModel/n_nearest_neighbors | 20 |
| | reg/ICPProbModel/max_assoc_dist_mah | 13 |
| | reg/ICPProbModel/max_corresp_dist_eucl | 0.04 |
| DVOSLAM | tracking/coarsest_level | 5 |
| | tracking/finest_level | 1 |
| | tracking/max_iterations | 300 |
| | tracking/scale_estimator_param | 1 |
| | tracking/influence_function_param | 30 |
| | tracking/mu | 0 |
| | tracking/precision | 0.0005 |
| | slam/max_rotational_distance | 0.3 |
| | slam/min_entropy_ratio | 0.3 |
| | slam/constraint_search_radius | 0.6 |
| | slam/constraint_min_entropy_ratio_coarse | 0.70 |
| | slam/constraint_min_entropy_ratio_fine | 0.8 |
| *RTABMap* | - | - |
| *ORB-SLAM2* | Camera.fx | 927.7444458007812 |
| | Camera.fy | 928.2129516601562 |
| | Camera.cx | 655.3325805664062 |
| | Camera.cy | 361.226318359375 |
| | Camera.width | 1280 |
| | Camera.height | 720 |
| | Camera.bf | 13.640315374 |
| | ORBextractor.scaleFactor | 1.25 |
| | ORBextractor.iniThFAST | 20 |
| | ORBextractor.minThFAST | 6 |
| | ORBextractor.nLevels | 8 |
| | ORBextractor.nFeatures | 2500 |
| *RGBDSLAMv2* | config/nn_distance_ratio | 0.5 |
| | config/ransac_iterations | 500 |